

Chapter 10

CUSTOM FIT AIRCREW FLIGHT CLOTHING

10-1. GENERAL.

10-1A. CUSTOM FIT FLIGHT APPAREL. Procedures for ordering custom fit flight apparel are as follows:

1. Have the regional FAILSAFE Tiger Team representative or, if not available, the Aeromedical Safety Officer (AMSO) verify that the current authorized garment does not properly fit the aviator/aircrewmember.

2. Forward message request for custom fit to TYCOM via normal chain of command with an information copy to COMNAVAIRSYSCOM Patuxent River MD PMA 202 and COMNAVAIRWARCENACDIV Patuxent River MD 4.6.1.2/4.6.3.1 including name of FAILSAFE member/AMSO who verified the custom fit requirement.

3. After receiving custom fit authorization, complete the following documentation, as applicable:

a. Form 1348-6, Single Line Item Requisition System Document.

b. NAVAIR Form 10126/1 (4-98).

c. Paper tracing of both feet if request is for footwear (socks/boots) and Form DD150.

d. Tracing of both hands for gloves.

e. National stock number (NSN) of closest size garment.

f. Color and brief description of item.

g. Requested delivery date. If routine request, enter 30 days. Otherwise, identify deployment date.

h. Unit point of contact (name and phone number).

4. Forward applicable documentation cited in step 3 for all Summer Flyer's Coveralls, CWU-36/P Summer Flyer's Jacket, CWU-45/P Cold Weather Flyer's Jacket, G-1 Intermediate Flyer's Jacket, CWU-72/P Liner, CWU-75/P Socks, CSU-13B/P Anti-g Garment,

CWU-62 Series Anti-Exposure Coveralls, Neck and Wrist Seals to:

Director
Navy Clothing and Textile Research
Facility (NCTRF)
Code N2.SM, Bldg. 1 Mailroom
700 Robbins Ave.
Philadelphia, PA 19111-5008

To expedite order, fax to: DSN: 444-3803 or Com: 215-737-3803; Voice: 215-737-7954. Preferred method is fax.

4A. Orthopedic and non-commercial footwear must be submitted using website <http://www.warfighter.net> or <http://ct.dscp.dla.mil/ascot>.

a. Original requisition DD Form 1348 and accompanying DD Form 150 with foot tracing must be mailed or sent by courier to:

Veterans Integrated Service Network 3
ATTN: Ruben Morales, Medical Center
423 East 23 Street
New York, NY 10010

b. Questions shall be directed to:

Scott Reifsnyder
COMM: 215-737-5615
DSN: 444-5615
Email: sreifsnyder@dscp.dla.mil

5. A copy of the authorization message shall be made a permanent NATOPS entry. A copy shall be attached to the Aircrew Systems Record, OPNAV 4790/138. A copy of the message shall also be provided to the aviator/aircrewmember for their personal record.

6. Messages of authorization granting the custom fit shall remain in effect until the aviator/aircrewmember is discharged or resigns from the Navy/Marine Corp.

10-2. Custom, or tailor-made, flight clothing begins with obtaining correct measurements of the individual for whom the flight clothing is being tailored. Correct measurements can only be determined by following proper measurement procedures. The intent of this chapter is to provide these proper measurement procedures.

10-3. ACCESS TO PHYSIQUE. Proper measurements can not be determined without access to the individual's body shape. Attempting to obtain measurements of an individual whose body shape is obscured by street clothing containing personal items such as wallets, pens and pencils, insignia, etc. will not produce the desired results. Light physical training clothes are the recommended choice of clothing to be wearing during the measurement process because they tend to be thin and brief. Running shorts and tank-top are best because a lot of bone structure that help to define measurements are visible. Spandex or other expandable material is not good because such material compresses the shape of the body too much. If the individual to be measured is not wearing the recommended apparel, have them empty all pockets and remove belts, shoes and socks. If the person is wearing a T-shirt under a dress shirt, the dress shirt should be removed.

10-4. POSITION. The person to be measured should stand straight, eyes looking forward (preferably at a fixed point), heels together, and weight evenly distributed on both feet. The arms should hang at the sides naturally unless otherwise instructed.

10-5. SUPPORT EQUIPMENT AND TOOLS. Recommended equipment and tools required for this procedure

includes a full length mirror, a cloth or vinyl measuring tape (in good condition and legible), a 3 X 5-inch piece of 1/8-inch thick cardboard, an 8-foot metal measuring tape, adhesive tape, a grease pencil, a rubber band, and NAVAIR Form 10126/1 on which to record all measurements.

10-6. THE WAISTLINE - MALE VS FEMALE.

Location of the waistline is an extremely important factor. If not correctly determined, other measurements will also be incorrect. A good estimate of waistline location is where a person chooses to wear a belt. However, men and women normally wear their belts differently. Women tend to wear waistbands on top of their abdomens at the narrowest point of their waist, while the position a man wears his belt often depends on his general physical condition. If he has a protruding abdomen, he may wear his belt below his abdomen. Generally, however, a man wears his belt in a near horizontal position resting on his pelvic, or hip-bone, and crossing his body in the general area of his navel (see figure 10-1). If the individual is wearing running shorts, the waistband position of the shorts may not be a good indicator since they tend to ride a little low. Have an adjustable belt available so the individual can position it where normally worn.

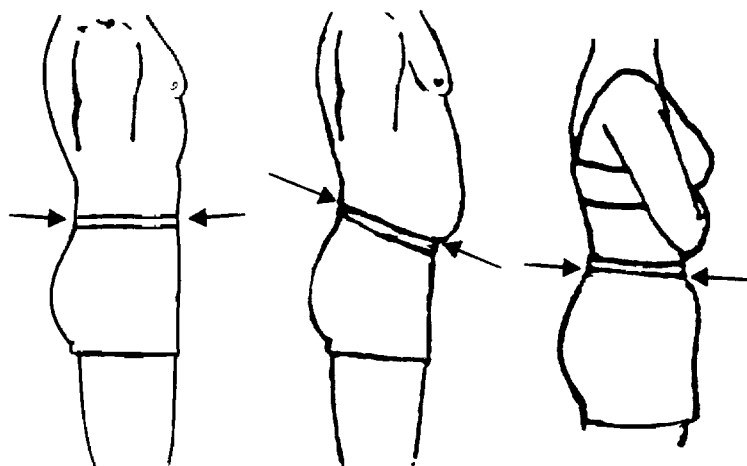


Figure 10-1. Waistline Location

10-7. PROBLEM AREAS.

10-8. Accuracy can not be over-emphasized. A small error in a critical measurement may affect other critical measurements resulting in rejection of the garment and unnecessary cost. If an individual has an unusually proportioned body, ensure a complete description of the difference is provided in block 15 of NAVAIR Form 10126/1, (figure 10-2) and/or provide a photograph of the individual with the order.

1. Position of the measuring tape is important. Some of the circumference measurements require the tape to be horizontal, parallel to the floor all the way around, while other measurements must be vertical. Use of a full length mirror to act as another pair of eyes will ensure proper tape position. Another source of error is caused by movement of the individual being measured. Having the person stare at a given eye-level point within the room or out a window while being measured may help eliminate or reduce movement. Holding the tape too tightly compressing the individual's body will also result in an inaccurate measurement.

2. Proper completion of Form 1348 and NAVAIR Form 10126/1 is also essential for satisfactory customizing. Complete all required tasks and enter data on forms accurately and legibly. Missing, incorrect, or illegible data may result in unsatisfactory completion of the order. See paragraph 10-24 and figure 10-4.

3. If at all possible, send in several requisitions at a time. Customizing is done by contract and a single or small order requisition may not receive the prompt action that larger orders receive. Keep track of orders and timing and take action when required. If the order is not received in 30 days contact the following:

Officer In Charge
Navy Clothing and Textile Research
Facility (NCTRF)
700 Robbins Ave, Bldg 6
Philadelphia, PA 19111
Attention: Code N2-SM
Telephone (215) 737-7954
DSN 444-7954
FAC (215) 737-3803

NOTE

If telephone contact is made with the NAWCAD point of contact (POC), follow with written report to document the action.

4. If customizing error has been made, send garment to Defense Supply Center - Philadelphia (DSCP) at the following address for necessary action and advise NCTRF POC.

Defense Supply Center Philadelphia (DSCP)
700 Robbins Ave, Bldg 6
Philadelphia, PA 19111
Attn: Code DSCP-FN

10-9. CUSTOM-SIZED MEASUREMENT.

10-10. Refer to NAVAIR Form 10126/1, Aircrew Custom Sizing Clothing Measurement Form (figure 10-2). The following procedures refer to and expand upon the numbered blocks of the form. All measurements shall be made to the nearest 1/2 inch and recorded in the space provided in each block of the form.

10-11. WEIGHT (BLOCK 1) The individual shall be weighed wearing the same attire to be worn during measuring process. Weigh and record weight in block 1 of the form.

10-12. HEIGHT (BLOCK 2) The individual shall be barefooted, standing straight, heels together, and looking straight ahead. Measure the person's height and record it in block 2 of form.

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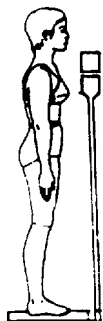
AIRCREW CUSTOM-SIZED CLOTHING MEASUREMENT FORM

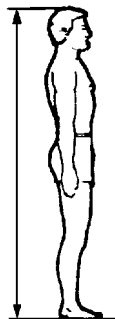
1. AIRCREW TO BE FITTED	2. SOCIAL SECURITY NO.	3. RANK/GRADE	4. TODAY'S DATE (YYMMDD)
5. COMMAND	6. STATION (E.G. CVN-72, MCAS IWAKUNI, NAS NORFOLK, ETC)	7. DATE NEEDED BY (YYMMDD)	
8. PCS/DEPLOYMENT DATE (YYMMDD)	9. NEXT DUTY STATION	10. REQUISITION NO.	
11. MEASUREMENTS TAKEN BY (PRINT)			12. PHONE NUMBER
13. ITEM REQUESTED	14. QTY	15. FAILSAFE TIGERTEAM SIGNATURE AND DATE (YYMMDD)	

MEASURING INSTRUCTIONS:

- Take measurements using cloth tape, rounding up all measurements to nearest 1/2" inch.
- Measure over underwear, OR over loose, thin shorts and tank top but NOT over spandex (Lycra®).
- Measurements should be taken with BAREFOOT person standing up straight, heels together, arms at sides, and eyes looking straight ahead unless otherwise instructed below.
- Use a full length mirror to make sure tape is lined up in back.

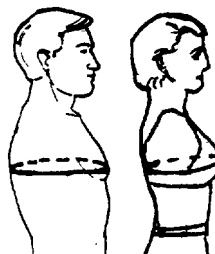
IMPORTANT: NEVER add extra for "ease" or mobility. The patternmaker will add this later.

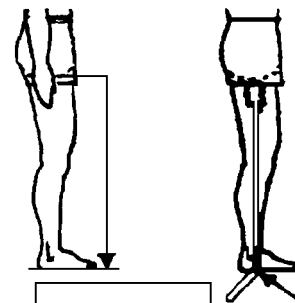
1. WEIGHT:
(in pounds)

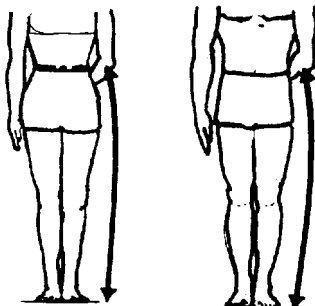
2. HEIGHT: Person should be barefooted, standing with heels together, eyes looking straight ahead.

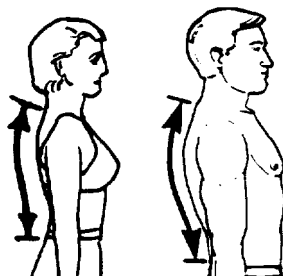
3. CHEST CIRCUMFERENCE:

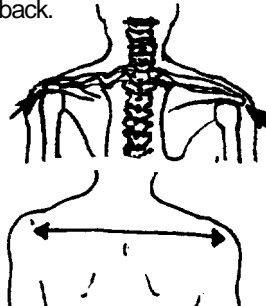
Measure circumference of fullest part of chest, keeping tape level to the deck all the way around.



4. INSEAM: Assemble the device in Figure 1 (over). Have person position curved edge against groin to the right of genitals). Extend tape straight down to floor and read at floor.

5. OUTSEAM: Start tape at side waistline (top of belt if MAN, bottom of belt if WOMAN). Follow general outline of leg (but not every bump and curve) down to floor.

6. BACK WAIST LENGTH: Mark bony knob on back of neck. Ask person to don a belt at his/her waistline. Measure neck mark to just above belt if MAN, just below belt if WOMAN, following curve of the back.

7. BACK WIDTH: Mark back "corner" of flat-edged left and right shoulder bones. Measure distance between left and right shoulder marks across the back.

FOR OFFICIAL USE ONLY
Predicted Size:

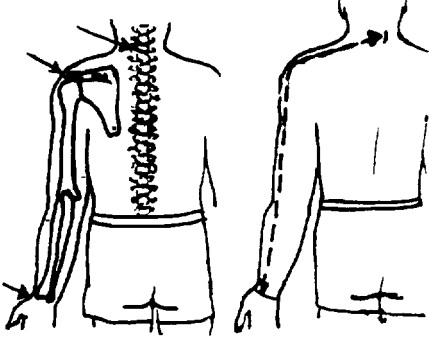
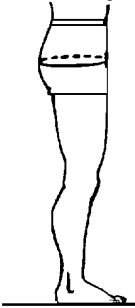
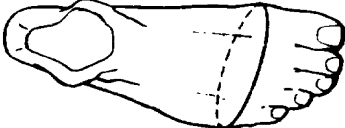
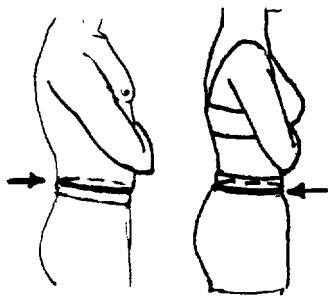
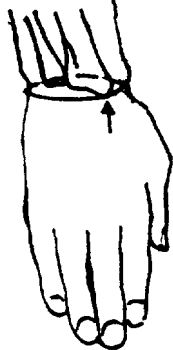
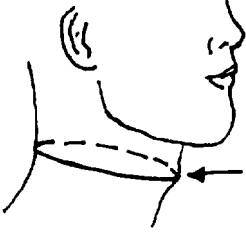
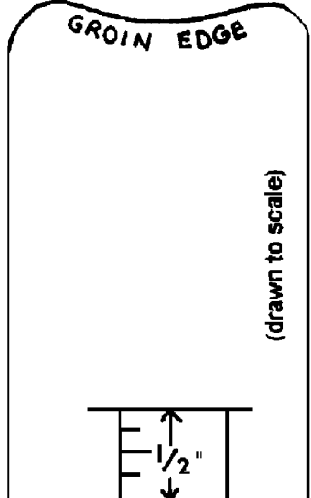
<p>8. SLEEVE LENGTH: Stand in back of person. Mark middle of bony knob at base of neck. On DOMINANT arm, mark wristline with rubberband (see Wrist Circumference below). Measure from neck mark over middle of shoulder ball down to rubberband.</p>  <div style="border: 1px solid black; height: 25px; width: 100px; margin-top: 10px;"></div>	<p>9. SEAT CIRCUMFERENCE: From side of body, measure circumference of body at fullest part of buttocks, without any compression. Keep tape level to deck all the way around the body.</p>  <div style="border: 1px solid black; height: 25px; width: 100px; margin-top: 10px;"></div>	<p>10. BALL OF FOOT CIRCUMFERENCE: (for anti-exp. Socks): Measure widest part of DOMINANT foot across ball. Include nearby bunions and corns. Attach tracing of foot to form.</p>  <div style="border: 1px solid black; height: 25px; width: 100px; margin-top: 10px;"></div>	
<p>11. WAIST CIRCUMFERENCE: Measure circumference along waistline (just above belt if MAN, just below belt if WOMAN) without compression. Tape may be tilted front to back.</p>  <div style="border: 1px solid black; height: 25px; width: 100px; margin-top: 10px;"></div>	<p>12. WRIST CIRCUMFERENCE (FOR WRIST SEAL): on DOMINANT wrist, place rubberband at indentations between wrist and hand. Measure circumference just above rubberband.</p>  <div style="border: 1px solid black; height: 25px; width: 100px; margin-top: 10px;"></div>	<p>13. NECK CIRCUMFERENCE (FOR NECK SEAL): Wrap tape at the level of the voice-box ("Adam's apple") Find by asking person to swallow. Measure circumference.</p>  <div style="border: 1px solid black; height: 25px; width: 100px; margin-top: 10px;"></div>	<p>Figure 1. Inseam Device a) Using 1/8" thick cardboard, trace and cut out device below. b) Fasten measuring tape so that 0" is 1/2" above lower edge.</p> 
<p>14. Using a comparison garment, describe the fitting problems (e.g., "crotch 3" too long", etc.) and problem body areas (e.g., "barrel chest", etc.).</p> <p>14a. IMPORTANT! NSN of Comparison Garment:</p>		<p>15. If a WELL-FITTING garment is available, measure area (e.g., inseam, sleeve length, neck-to-crotch) corresponding to problem in #14. Write here:</p> <div style="border: 1px solid black; height: 150px; width: 100%; margin-top: 10px;"></div>	

Figure 10-2. Aircrew Custom-Sized Clothing Measurement Form (Sheet 2 of 2)

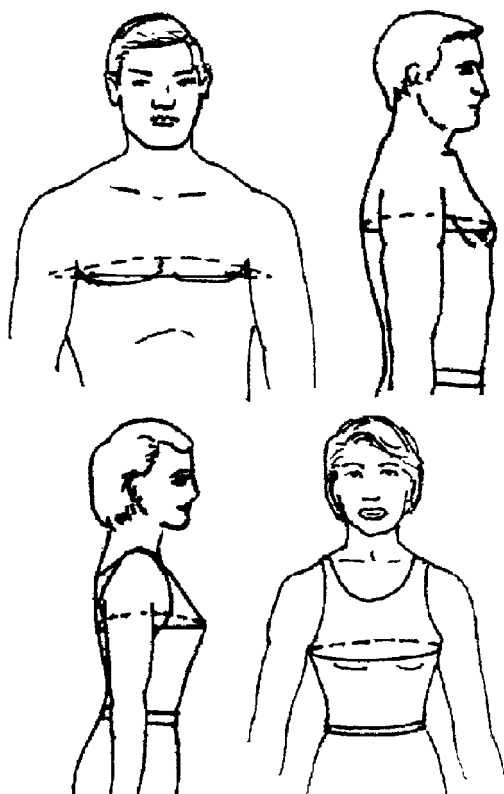
10-13. CHEST CIRCUMFERENCE (BLOCK 3). The individual shall stand with hands on hips and feet together. Standing at individual's side, pass the measuring tape across the fullest part of the chest, around the back and to the front. Use the full length mirror to ensure tape is kept horizontal and parallel to the floor across the back and all around. The individual shall then place hands at the side and relax the shoulders. Take measurement when the person inhales naturally. Record measurement in [block 3](#).

NOTE

Do not hold tape tight enough to compress any part of the person's body.

At times the tape may slip off the chest, especially when measuring a woman. Do not pull tape tighter to keep it in place. Do not let the person hold the tape in place; raising the arms will cause the chest to expand. Try rubbing wax on the tape to keep it from slipping.

When measuring a woman, she should be wearing a bra like the one she normally wears when flying.



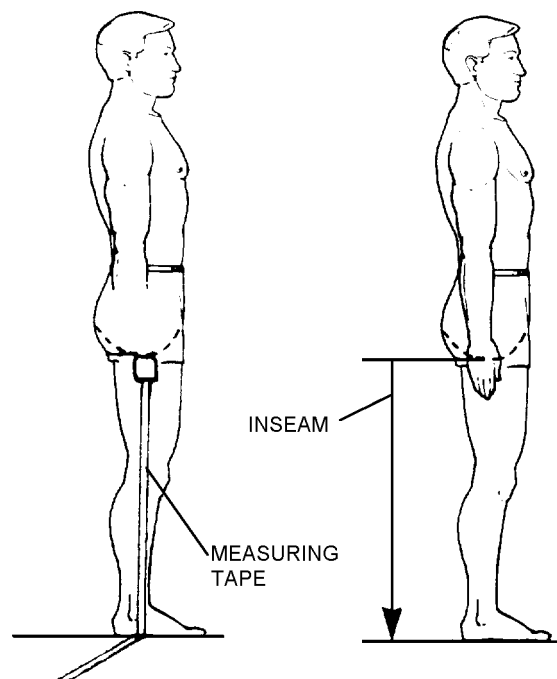
Para 10-13

10P13

10-14. INSEAM (BLOCK 4). Using the pattern in [figure 10-3](#) fabricate the device illustrated. Then have the individual being measured hold the device between the legs with the top, marked GROIN SIDE, against the groin, to the right of the genitals. Extend the attached tape straight down to the floor and measure the distance to floor level. Record measurement in [block 4](#).

NOTE

Ensure the person's feet are not too far apart or the reading will be too short. The feet should be just far enough apart to permit the tape to be read.



Para 10-14

10P14

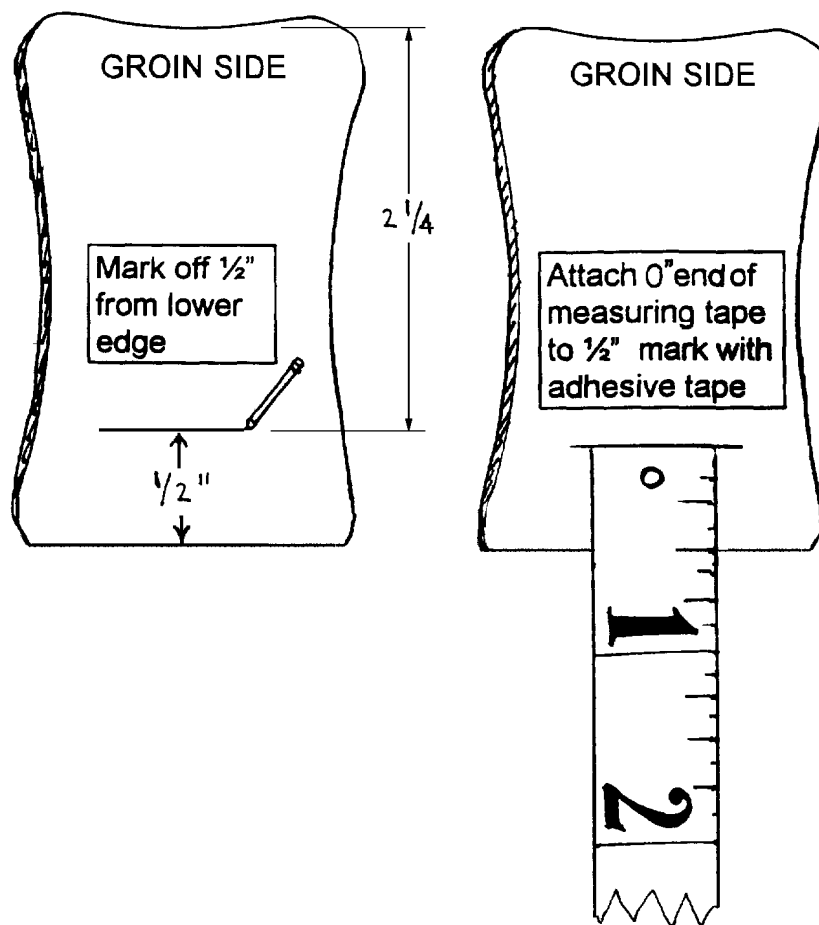
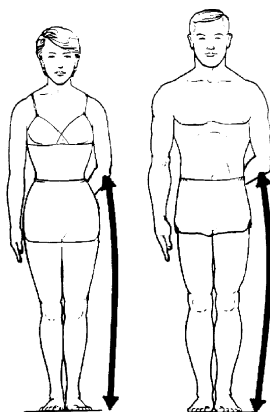


Figure 10-3. Inseam Measuring Device

10-3

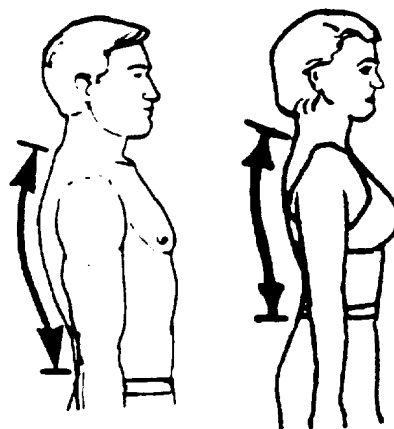
10-15. OUTSEAM (BLOCK 5). Standing at individual's side measure from the individual's waistline (from top of belt if measuring a man, from bottom of the belt if measuring a woman) to the floor following the general curve along the hip and down the leg (but not every bump, bulge, or indentation). Record measurement in [block 5](#).



Para 10-15

10p15

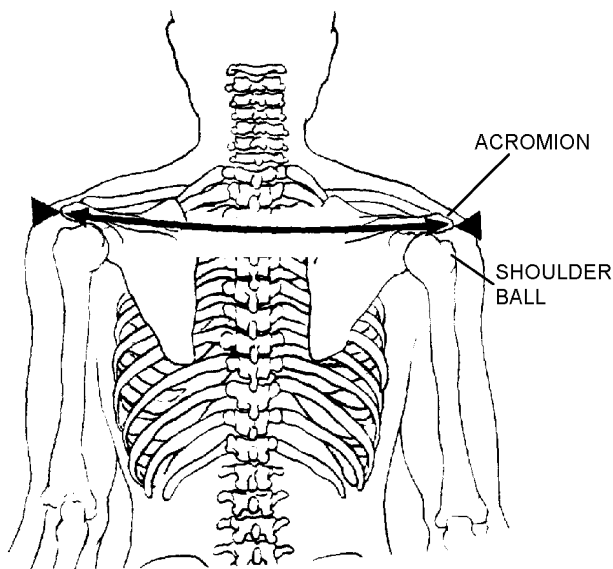
10-16. BACK WAIST LENGTH (BLOCK 6). Have individual position and secure a belt around the waist. Then, standing behind the person, measure the distance between the cervical bone (large bony knot in the spinal column at the base of the neck) and the waistline (to the top of belt if measuring a man, to the bottom of the belt if measuring a woman) following the curve of the back. Record measurement in [block 6](#).



Para 10-16

10p16

10-17. BACK WIDTH (BLOCK 7). Standing behind the individual, place a hand on the outside of one of the individual's arms. Starting at the elbow, slide hand up the arm until the shoulder ball is reached (the shoulder ball will roll when the arm is raised). Just above the shoulder ball is a flat-edged bone (acromion) which does not roll when the arm is moved. Use the outside edge of the index finger to line up against this bone. Trace the end edge of this bone until the back "corner" is reached and mark the position with a grease pencil. Repeat this procedure for the other shoulder. Measure the distance between the marks to determine the back width and record measurement in [block 7](#).



Para 10-17

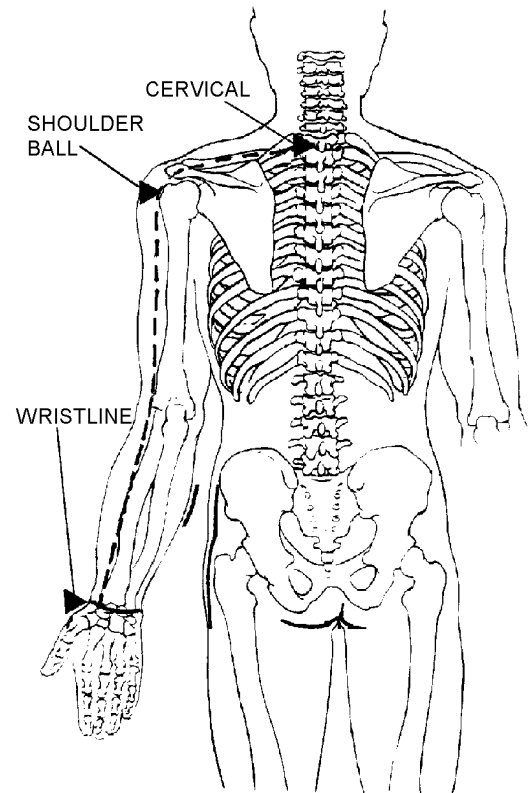
10p17

10-18. SLEEVE LENGTH (BLOCK 8). Determine sleeve length as follows:

1. Standing behind the individual locate the cervical bone (the large bony knob at the base of the neck). If the bone is not apparent, ask the individual to bow head and lower the chin to the chest and the bone will protrude. Keep tapping your finger on the bone while the individual slowly raises the chin to its normal position and place a mark on the skin at the middle of the bone.

2. With the individual in standing position, find the wristline on the dominant arm and place a rubber band around arm at that point. (The wristline is the place where the hand joins the wrist and the hand can move side to side as well as up and down.)

3. Measure sleeve length from the mark at the cervical, crossing over the middle of the shoulder ball and down to the rubber band at the wristline. Record sleeve length in [block 8](#).



Para 10-18

10p18

10-19. SEAT CIRCUMFERENCE (BLOCK 9). With the individual standing with arms crossed at the chest, stand at individual's side and visually locate the fullest part of the buttocks (seat). Pass the tape around the body from the left side to the right side, passing over the fullest part of the seat, keeping the tape parallel with the floor. Use the full length mirror to ensure tape is horizontal and parallel with floor. Do not compress the body by holding the tape too tightly in position. Record seat measurement in [block 9](#).



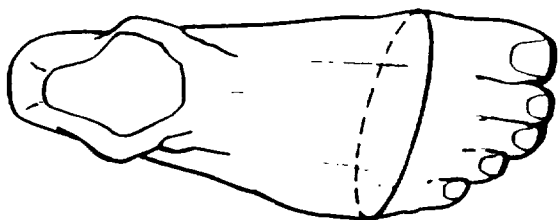
Para 10-19

10p19

NAVAIR 13-1-6.7-2

10-20. BALL OF FOOT CIRCUMFERENCE (BLOCK 10)

With individual standing with feet about four inches apart wrap tape under the ball of the foot and across the widest part of the foot. If foot has bunions and/or corns which extend the width of the foot, ensure tape is positioned to include them in measurement. Ensure weight is evenly distributed on both feet, then measure circumference of the ball of the foot. Trace outline of individual's foot on a sheet of paper and attach paper to NAVAIR Form 10126/1. Record measurement in block 10.



Para 10-20

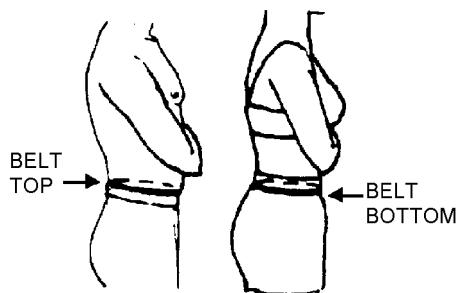
10p20

10-21. WAIST CIRCUMFERENCE (BLOCK 11)

Have individual put on adjustable belt at waistline and ensure it is not cinched too tightly. A belt or measuring tape cinched too tightly will result in custom-sized flight clothing that fit too tightly. Pass the tape around the waist, making sure tape does not compress the body, and measure circumference of the waistline (just above the belt for men and just below the belt for women). Record measurement in block 11.

NOTE

Depending on the person's build, the measuring tape may appear to tilt down back to front.

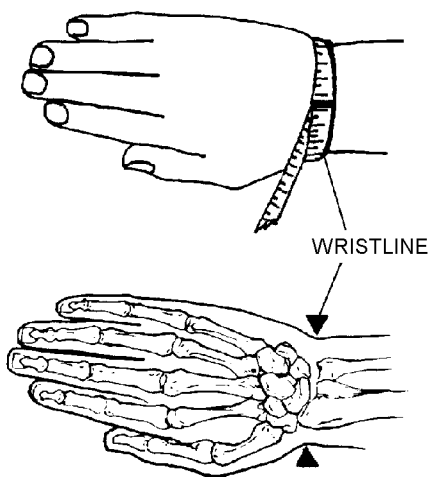


Para 10-21

10p21

10-22. WRIST CIRCUMFERENCE (FOR WRIST SEALS) (BLOCK 12)

On dominant arm find wristline. (The wristline is the place where the hand joins the wrist and the hand can move side to side as well as up and down.) Measure circumference just above wristline (nearest hand). Record measurement in block 12.

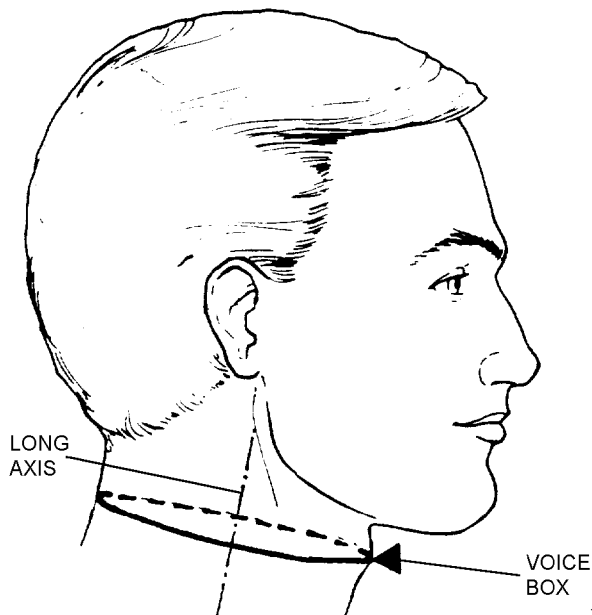


10p22

Para 10-22

10-23. NECK CIRCUMFERENCE (FOR NECK SEAL) (BLOCK 13)

Locate voice box (Adam's apple). (If having trouble finding it, ask individual to swallow. Voice box will visibly move up and down.) Measure neck at level of the voice box. The tape may not be parallel to the floor, since the measurement should be taken with the tape perpendicular to the long axis of the neck. Record measurement in block 13.



10p23

Para 10-23

10-23A. DESCRIPTION OF FITTING PROBLEMS (BLOCK 14)

Block 14 is mandatory. Block 14 not being filled in usually causes delays in custom manufacturing of clothing items. It is imperative that the pattern makers have a starting point to use in manufacturing a custom fit item. Use block 14 to help the pattern makers by annotating the (NIIN) of the item the aircrew is currently wearing (best fit) and describe in detail why that particular size isn't working (e.g. arms too short) for the aircrew. The NIIN for the current or best-fit clothing item must also be annotated in this block.

10-24. EXAMPLE OF COMPLETED NAV-AIR FORM 10126/1.

10-25. The following is an example of what could happen when a patternmaker at Defense Supply Center receives a NAVAIR Form 10126/1 which has been prepared without due regard for accuracy and legibility.

1. Using the measurement example below, check your work. If rise is not within recommended estimates or measured height does not equal estimated height, the person should be remeasured. In column 1, using data provided, determine rise. (It should be 9 to 12 inches for men and 11 to 14 1/2 inches for women.)

2. First the patternmaker will check the data received. If he finds apparent errors and/or what appears to be conflicting data, he will attempt to contact the requesting organization for confirmation of the data. However, due to illegible or missing data

on the form, the requesting organization can not be contacted to confirm or provide the data. The patternmaker must therefore proceed using experience and various charts and tables at his disposal. Referring to the completed NAVAIR Form 10126/1 ([figure 10-4](#)) the appropriate data is obtained and the mathematics indicated in the measurement example below is performed.

3. After all other measurements provided are corrected to the patternmaker's satisfaction, using provided height, weight, and chest circumference data, the best fitting size will be determined from appropriate size charts. The result may or may not be anywhere near the custom-sized garment desired.

10-26. The process above is provided to emphasize the necessity of ensuring accurate, legible data and the need for checking all data to be provided. One wrong measurement or illegible entry can snowball into wasted time, effort, and cost.

Column 1	Column 2
Outseam: _____	Back Waist Length: _____
Inseam: - _____	Outseam: + _____
= _____	Head + Neck + 10
(Rise)	Length
Measured Height = _____	Should Equal Estimated Height = _____

Measurement Example

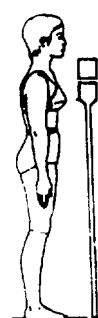
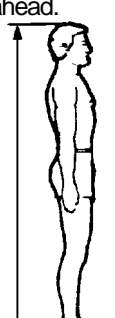
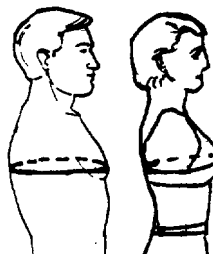
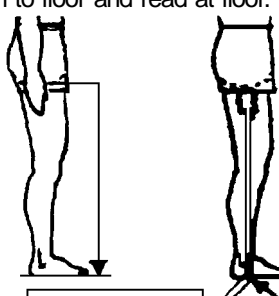
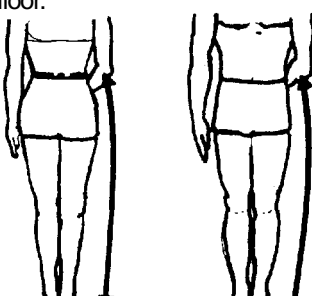
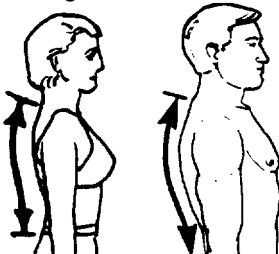
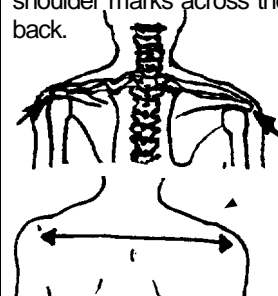
AIRCREW CUSTOM-SIZED CLOTHING MEASUREMENT FORM

1. AIRCREW TO BE FITTED JOHN DOE	2. SOCIAL SECURITY NO. 000-00-0000	3. RANK/GRADE LT	4. TODAY'S DATE (YYMMDD) 980313
5. COMMAND UX-1	6. STATION (E.G. CVN-72, MCAS IWAKUNI, NAS NORFOLK, ETC) NAS PATUXENT RIVER	7. DATE NEEDED BY (YYMMDD)	
8. PCS/DEPLOYMENT DATE (YYMMDD) 980418	9. NEXT DUTY STATION MCAS IWAKUNI	10. REQUISITION NO. DON'T LEAVE BLANK!	
11. MEASUREMENTS TAKEN BY (PRINT) Jim Barrell		12. PHONE NUMBER DSN 342-9999	
13. ITEM REQUESTED CWU-27/P	14. QTY 03	15. FAILSAFE TIGERTEAM SIGNATURE AND DATE (YYMMDD) DON'T LEAVE BLANK!	

MEASURING INSTRUCTIONS:

- Take measurements using cloth tape, rounding up all measurements to nearest 1/2" inch.
- Measure over underwear, OR over loose, thin shorts and tank top but NOT over spandex (Lycra®).
- Measurements should be taken with BAREFOOT person standing up straight, heels together, arms at sides, and eyes looking straight ahead unless otherwise instructed below.
- Use a full length mirror to make sure tape is lined up in back.

IMPORTANT: NEVER add extra for "ease" or mobility. The patternmaker will add this later.

1. WEIGHT: (in pounds)  238	2. HEIGHT: Person should be barefooted, standing with heels together, eyes looking straight ahead.  6' 7"	3. CHEST CIRCUMFERENCE: Measure circumference of fullest part of chest, keeping tape level to the deck all the way around.  48"	4. INSEAM: Assemble the device in Figure 1 (over). Have person position curved edge against groin to the right of genitals). Extend tape straight down to floor and read at floor.  35 1/2
5. OUTSEAM: Start tape at side waistline (top of belt if MAN, bottom of belt if WOMAN). Follow general outline of leg (but not every bump and curve) down to floor.  47	6. BACK WAIST LENGTH: Mark bony knob on back of neck. Ask person to don a belt at his/her waistline. Measure neck mark to just above belt if MAN, just below belt if WOMAN, following curve of the back.  21 1/2"	7. BACK WIDTH: Mark back "corner" of flat-edged left and right shoulder bones. Measure distance between left and right shoulder marks across the back.  20 3/8"	FOR OFFICIAL USE ONLY Predicted Size: IS THIS 35, 37, OR 39? ROUND TO NEAREST 1/2"

NAVAIR FORM 10126/1

Figure 10-4. Example Completed NAVAIR Form 10126/1.